



LAPAROSCOPIC APPENDECTOMY; COMPARISON OF OUTCOME IN SINGLE INCISION LAPAROSCOPIC APPENDECTOMY VERSUS CONVENTIONAL THREE PORT LAPAROSCOPIC APPENDECTOMY.

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ABSTRACT... Background: Minimal invasive surgery (MIS) is a modern and safe improvement in field of laparoscopic surgery. Single incision laparoscopic appendectomy (SILA) is a major breakthrough in MIS and has become standard procedure for acute appendicitis in place of conventional three port laparoscopic appendectomy (CTLA). **Objectives:** To see the potential advantages in terms of operative time, duration of hospital stay, post-operative pain and cosmetic results in SILA and CTLA groups. **Study Design:** Randomized control study. **Setting:** Department of General Surgery in Allama Iqbal Medical College/ Jinnah Hospital Lahore. **Period:** July 2016 to June 2017. **Materials and Methods:** 48 patients were divided in two groups; group SILA (cases) and CTLA (control). Each group comprised 24 patients. All cases were performed by consultant who were competent enough and trained in MIS. **Results:** We found that there was statistically no difference in operative time ($p>0.05$) and post-operative pain ($p>0.05$) of both procedures but statistically significant outcome was observed in duration of hospital stay ($p<0.005$) and cosmetic result ($p<0.005$). Post-operative analgesia usage was same in both groups with similar outcome of control. Surgical wound healed in all patients of both groups without complication but noticeably had shown no scar mark on three months follow up in patients of SILA group. Almost all patients in SILA group were discharged on same day on oral diet. **Conclusion:** This study showed that results of SILA are better in terms of cosmesis and less duration of hospital stay in the presence of non-significant operative time of two procedures. Staying with promise of minimizing in MIS to SILA, cosmetic satisfaction and minimal hospital stay are its comprehensible advantages.

Key words: Minimal Invasive Surgery, Acute Appendicitis, Appendectomy, Laparoscope.

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INTRODUCTION

The laparoscopic surgery is most beneficial than conventional abdominal surgery (CLA), because it comprises less pain after surgery, morbidity, short time to stay in hospital and less recovery time required for different abdominal operations.¹⁻³ Nominally in single-port laparoscopic techniques (SPLT) the single incision laparoscopic surgery (SILS) and natural orifice transluminal endoscopic surgery (NOTES) are better surgical techniques as compared to CLA. The most common benefit of these techniques is having mark-free surgery when it is performed by a well experienced surgeon.⁴ But as compared to SILA, the NOTES surgical technique have multiple disadvantages/draw-backs. Including, requirement of extra incision for gaining approach to the main point/

organ (peritoneal cavity), critical morbidity and more time to recovery of patients.^{4,5}

In single incision laparoscopy surgery all working components invaded to the abdominal wall by the similar incision. This type of surgical technique provides a multiple benefits regarded better cosmetic outcomes. It includes rare complications/problems and a quick recovery of patients. However, in natural orifice transluminal endoscopic surgery technique resulted more pain after surgery and more complications.⁶ Many other studies resulted that using SILS technique, patients having less pain and few complications after surgery as compared to N-O-T-E-S,⁵ including SILA.⁷

Moreover, during surgery SILS technique can easily converted to CLS if needed.⁸ Laparoscopy is the most preferable treatment of appendicitis mostly in children.⁹ Appendicitis found more frequent in surgical experienced, mostly in children having age of eleven to twelve years, and the life time risk is seven to nine percent%.¹⁰ Single incision laparoscopic appendectomy technique is applying in all aged patients and this technique is frequently using in a multiple hospitals.¹¹

The purpose of this study was to observed the advantages of SILS as compared to CLA, it include less pain after surgery, short time stay in hospital, quick recovery of patients and cosmetics results.

MATERIALS AND METHODS

This randomized control study was conducted at Department of General Surgery in Allama Iqbal Medical College/Jinnah Hospital Lahore from July

2016 to June 2017 and comprised 48 patients. Patients were divided in two groups; group SILA (cases) and CTLA (control). Each group comprised 24 patients. All cases were performed by consultant who were competent enough and trained in MIS.

RESULTS

The mean age operative of single incision laparoscopic appendectomy was 49.50 ± 3.82 and conventional three port laparoscopic appendectomy was 50.58 ± 4.20 , statistically the difference was not significant ($P > 0.05$) (Table-I). The mean post-operative pain at 6, 12 and 24 hours showed statistically not significant difference between the two groups ($P > 0.05$) (Table-II). When the results of hospital stay were compared, statistically the results were significant [$P < 0.05$] (Table-III). According to cosmetic outcome, it showed statistically significant results ($P < 0.05$) (Table-IV).

Operative Time (Minutes)	SILA (n=24)		CTLA (n=24)	
	No.	%	No.	%
42 – 50	15	62.5	14	58.3
51 – 58	9	37.5	10	41.7
Mean \pm SD	49.50 \pm 3.82		50.58 \pm 4.20	
P value	0.355			

Table-I. Comparison of operative time in single incision laparoscopic appendectomy (SILA) versus conventional three port laparoscopic appendectomy (CTLA)

Post-operative Pain	SILA	CTLA	P value
6 hours	2.54 \pm 0.72	2.50 \pm 0.65	0.835
12 hours	1.67 \pm 0.63	1.38 \pm 0.49	0.734
24 hours	1.04 \pm 0.20	1.08 \pm 0.28	0.561

Table-II. Comparison of post-operative pain at 6 hours in single incision laparoscopic appendectomy (SILA) versus conventional three port laparoscopic appendectomy (CTLA)

Duration of Hospital Stay (Days)	SILA (n=24)		CTLA (n=24)	
	No.	%	No.	%
1	13	54.2	3	12.5
2	10	41.7	19	79.2
3	1	4.1	2	8.3
Mean \pm SD	1.50 \pm 0.59		1.96 \pm 0.46	
P value	.004			

Table-III. Comparison of duration of hospital stay in single incision laparoscopic appendectomy (SILA) versus conventional three port laparoscopic appendectomy (CTLA)

Cosmetic Outcome	SILA (n=24)		CTLA (n=24)	
	No.	%	No.	%
1 – 2	20	83.4	7	29.2
3 – 6	3	12.5	15	62.5
7 – 10	1	4.1	2	8.3
Mean±SD	2.29±1.70		3.58±1.69	
P value	.011			

Table-IV. Comparison of cosmetic outcome in single incision laparoscopic appendectomy (SILA) versus conventional three port laparoscopic appendectomy (CTLA)

DISCUSSION

In this study we observe that SILS technique is more beneficial than CTLA. Better cosmetic results, less pain after surgery and complications resulted better as compared to CTLA. Mostly surgeons consider that Single Incision Surgical Technique is a difficult procedure and need a lot of experience. The cost of new port-related devices can be an important factor. The use of a standard surgical glove for the single port provided a simple and cost-effective method.¹³

The mean age operative of single incision laparoscopic appendectomy was 49.50 ± 3.82 and conventional three port laparoscopic appendectomy was 50.58 ± 4.20 , statistically the difference was not significant ($P > 0.05$), Surgery time duration from 42 to 50 minutes in SILA group there were 15 patients and 51 to 58 minutes there were 9 patients (Table-I). The mean post-operative pain at 6 hours in SILA were 2.54 ± 0.72 and CTLA were 2.50 ± 0.65 at 12 hours SILA group had 1.67 ± 0.63 and CTLA group had 1.38 ± 0.49 and 24 hours showed statistically not significant difference between the two groups ($P > 0.05$) (Table-II). When the results of hospital stay were compared, statistically the results were significant [$P < 0.05$] (Table-III). According to cosmetic outcome, it showed statistically significant results ($P < 0.05$) (Table-IV).

In this study we observed that single incision laparoscopic appendectomy are better in terms of cosmoes and less duration of hospital stay in the presence of non-significant operative time of two procedures. Staying with promise of minimizing in minimal invasive surgery to single incision laparoscopic appendectomy, cosmetic satisfaction and minimal hospital stay are its comprehensible advantages. And it was similar

to the some other studies.¹¹

CONCLUSION

Single incision laparoscopic appendectomy are better in terms of cosmoes and less duration of hospital stay in the presence of non-significant operative time of two procedures. Staying with promise of minimizing in minimal invasive surgery to single incision laparoscopic appendectomy, cosmetic satisfaction and minimal hospital stay are its comprehensible advantages.



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REFERENCES

- Keus F, de Jong JA, Gooszen HG, van Laarhoven CJ. **Laparoscopic versus open cholecystectomy for patients with symptomatic cholelithiasis.** Cochrane Database Syst Rev 2006; 18(4):CD006231.
- Stocchi L, Nelson H, Young-Fadok TM, Larson DR, Ilstrup DM. **Safety and advantages of laparoscopic vs. open colectomy in the elderly: Matched-control study.** Dis Colon Rectum 2000; 43(3):326-32.
- Nguyen KT, Marsh JW, Tsung A, Steel JJ, Gamblin TC, Geller DA. **Comparative benefits of laparoscopic vs. open hepatic resection: A critical appraisal.** Arch Surg 2011; 146(3):348-56.
- Froghi F, Sodergren MH, Darzi A. **Single-incision laparoscopic surgery (SILA) in general surgery: A review of current practice.** Surg Laparosc Endosc Percutan Tech 2010; 20:191-204.
- Chow A, Purkayastha S, Nehme J, Darzi LA, Paraskeva P. **Single incision laparoscopic surgery for appendectomy: A retrospective comparative analysis.** Surg Endosc 2010; 24(10):2567-74.
- Sodergren MH, Clark J, Athanasiou T, Teare J, Yang GZ, Darzi A. **Natural orifice transluminal endoscopic surgery: Critical appraisal of applications in clinical practice.** Surg Endosc 2009; 23(4):680-7.
- Nguyen NT, Reavis KM, Hinojosa MW, Smith BR, Stamos MJ. **A single-port technique for laparoscopic**

- extended stapled appendectomy.** Surg Innov 2009; 16(1):78-81.
8. Kim HJ, Lee JI, Lee YS, Lee IK, Park JH, Lee SK, et al. **Single-port transumbilical laparoscopic appendectomy: 43 consecutive cases.** Surg Endosc 2010; 24(11):2765-9.
 9. Jen HC, Shew SB. **Laparoscopic versus open appendectomy in children: Outcomes comparison based on a statewide analysis.** J Surg Res 2010; 161:13-7.
 10. Dunn JC, Grosfeld JL, O'Neill JA. Appendicitis. **In: Pediatric surgery.** 6th ed. Philadelphia (PA): Mosby Elsevier; 2006:1501.
 11. Cho MS, Min BS, Hong YK, Lee WJ. **Single-site versus conventional laparoscopic appendectomy: Comparison of short-term operative outcomes.** Surg Endosc 2011; 25(1):36-40.
 12. Hong TH, Kim HL, Lee YS, Kim JJ, Lee KH, You YK, et al. **Transumbilical single-port laparoscopic appendectomy (TUSPLA): Scarless intracorporeal appendectomy.** J Laparoendosc Adv Surg Tech A 2009; 19(1):75-8.
 13. Hayashi M, Asakuma M, Komeda K, Miyamoto Y, Hirokawa F, Tanigawa N. **Effectiveness of a surgical glove port for single port surgery.** World J Surg 2010; 34(10):2487-9.
 14. Oltmann SC, Garcia NM, Ventura B, Mitchell I, Fischer AC. **Single-incision laparoscopic surgery: Feasibility for pediatric appendectomies.** J Pediatr Surg 2010; 45(6):1208-12.
 15. Ahmed K, Wang TT, Patel VM, Nagpal K, Clark J, Ali M, et al. **The role of single-incision laparoscopic surgery in abdominal and pelvic surgery: A systematic review.** Surg Endosc 2011; 25(2):378-96.
 16. Kye BH, Lee J, Kim W, Kim D, Lee D. **Comparative study between singleincision and three-port laparoscopic appendectomy: a prospective randomized trial.** J Laparoendosc Adv Surg Tech A 2013; 23(5):431-6.
 17. Vettoretto N, Mandalà V. **Single port laparoscopic appendectomy: Are we pursuing real advantages?** World J Emerg Surg 2011; 6:25.
 18. Kang KC, Lee SY, Kang DB, Kim SH, Oh JT, Choi DH, et al. **Application of single-incision laparoscopic surgery for appendectomies in patients with complicated appendicitis.** J Korean Soc Coloproctol 2010; 26(6):388-94.

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Sajid Malik	Writing of manuscript and compiling results.	
2	Kamran Zaib Khan	Data collection & writing of manuscript.	
3	Iftikhar Ahmad	Statistical analysis & guidance in writing the manuscript.	